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ABSTRACT

A set of "creative competencies" provides a framework for assessing the extent to which local school environments contribute to the production of creative citizens. Following an introduction to rationale and organization of the Vermont Creativity Task Force, material is divided into five substantive sections. Section 1 pinpoints the characteristics of a creative personality, including such attributes as flexibility, persistence, judgment, and detached involvement. Section 2 explores the attitudinal factors conducive to creativity. Components considered are respect for a discipline of knowledge, concern for process over product, development of a creative atmosphere, emphasis on flexibility, acceptance of failure, and provision of encouragement. Section 3 outlines environmental factors conducive to creativity, such as variation in learning spaces and architecture. Section 4 details the role of materials in fostering creativity. The final section outlines steps that should follow this report, including the need to visit local projects, to identify exemplary programs, to develop resource packets, and to initiate training. Two additional sections contain 4 pages of resources and a response sheet. (LP)

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FIRST STEPS:
FOSTERING CREATIVITY IN VERMONT'S
SCHOOLS & COMMUNITIES

The Vermont Department of Education
and
The Vermont Alliance for Arts Education
November 1982

50 015 579

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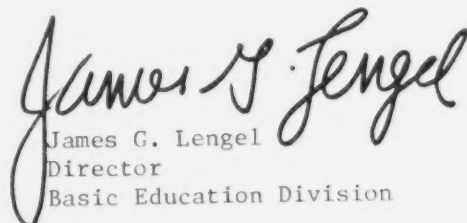
Dear Colleagues:

Vermont has always produced more than its share of creative people. Inventors, writers, artists, and statesmen have found the Vermont environment particularly nourishing to unique and original work. Vermont has traditionally expected its citizens to be creative in everything from arts to agriculture to social planning, and its culture has remained flexible so that this expectation can be fulfilled. It's not that Vermonters are born to create and invent; rather they are brought up to work in a world that fosters creative solutions to the problems of the day.

But what of our schools? Do they foster this same spirit? Do they recognize, accept, and nourish creativity in our young Vermonters?

Before attempting to answer this question, we must look carefully at our schools. The Creativity Task Force has given us a method for doing this. Working over the past year, this group of educators and citizens (several of them recognized for their creative contributions to the state) has assembled a set of findings and observations that should help us, in our communities, to examine how well our school environment contributes to the production of creative citizens.

This is not a new conception of the role of the school. It continues a Vermont tradition, and follows closely the spirit of the Vermont Design for Education. I urge educators and citizens alike to look at their schools in terms of the ideas in this document. I encourage you to make the changes that are necessary so that Vermont can continue to produce a creative spirit in each of its citizens.


James G. Lengel
Director
Basic Education Division



Vermont Education Association

P.O. Box 567 - Montpelier, Vermont 05602 - (802) 223-6375

The VEA Center is at 138 Main Street
Montpelier, Vermont

October 25, 1982

Dear Educators -

If we are truly to address the needs of the whole person in Vermont schools, we must at long last broaden our understanding of creativity. Only then can we hope to succeed in nurturing creativity. The following document represents many months of work in this direction, but represents nevertheless only the first step toward the goal.

I urge that all of us who are concerned about quality education in Vermont at least read the document carefully and react to its contents. Beyond that, and more important, I urge that we all involve ourselves in generating or promoting local creativity projects - and that we then share such projects and resulting information with our colleagues. Only through such initiative and mutual support can we hope to realize the exciting potential for children and educators which is suggested in the following document.

Sincerely,

Maida F. Townsend
President

MFT/bsf

An affiliate of the National Education Association

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equal employment and educational opportunities
regardless of race, color, creed, age, handicap, national origin, or sex,
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FIRST STEPS

In August of 1981 the Vermont Department of Education and the Vermont Alliance for Arts Education began an attempt to identify "creative competencies." From that time to the present, a ten-member committee, selected by the Commissioner of Education, has conducted research, interviews, discussions, and two conferences aimed at broadening our understanding of creativity and initiating a process that would involve others in a similar pursuit. Our rationale for embarking upon this work was the belief that creativity needs to be fostered if we are to help preserve the heritage of community, resourcefulness, self-reliance, and beauty which characterizes Vermont.

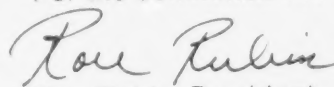
However, from the very beginning we recognized that creativity was a **way** of thinking, feeling, and doing that requires specific conditions. For this reason we concentrated our efforts upon the identification of individual characteristics of creativity and the attitudinal, environmental, and material factors necessary to foster creativity. In this sense we departed from the usual definition of competency and chose to view creativity as a quality of both institutions and individuals; a quality that is necessarily somewhat intangible and which might best be compared to the movement of a dancer or athlete. Specific techniques are involved and applied in a rational manner that combines discipline with grace and style. The result is a product that communicates more than the sum of its parts and which requires qualitative rather than quantitative assessment.

Additionally, we have come to believe that creativity is within us all, touches every discipline, and can be nurtured. Yet the word creativity is enough to raise feelings of inadequacy and anxiety. We have come to believe that creativity cannot be bridled by one definition and therefore requires a tolerance for ambiguity and uncertainty. We have come to believe that creativity requires balance between frequently contradictory forces that need to be brought together into a complementary whole.

It should also be emphasized that throughout our work we have been guided by the assumption that the process is equally, if not more important, than the product. Along with the practical constraints of time and financial support, this assumption is critically important in understanding the following pages. As well, the reader should be aware that each section in this document was written by a team of individuals who possess their own unique style of expression and is based upon the input of many, many other people.

For these reasons, we see this document as **only** the first step in an endeavor that cannot and should not be completed. Indeed, if we are successful, our work will continue to grow. New explorations will be periodically started; new chapters will be added to this document, and future generations will continue such efforts. Accordingly, we have included a section concerning future actions and a response sheet to the document. Our hope is that you will respond by translating these pages into practice and informing us of your thoughts and feelings regarding what we and you have created.

For the committee . . .



Ron Rubin, President
Vermont Alliance for Arts Education

SECTION I

The Characteristics of Creativity

A characteristic of creativity is a complex blending of abilities, attitudes, and emotions. Each individual has his or her own unique array of characteristics. At times the individual may resemble several thinkers in various combinations. Creativity may require not only one, but several differing combinations and at times these combinations may seem paradoxical in nature.

Some of the most remarkable creative achievements begin with an awareness of a tension between opposites. This tension involves a whole mind/body/spirit activity that provides the energy necessary for solution-creation at the highest levels. This tension combines a sense of humor, flexibility and competence.

FIGURE 1
THE CHARACTERISTICS OF CREATIVITY
Dialectic of Opposites: A Dynamic Union

CORE CHARACTERISTICS	FLEXIBILITY	PERSISTENCE
INDIVIDUAL CHARACTERISTICS	DELAYED ↔ CLOSURE DIVERGENCE ↔ CONVERGENT DETACHED ↔ INVOLVEMENT MINDLESS ↔ PERCEPTION	

A CORE CHARACTERISTIC

*A Core Characteristic of The Creative Personality
is Flexibility Coupled With Persistence*

Flexibility is the freedom to give all the elements of thinking and learning free play.

- It is looking at the world from all angles and directions.
- It is the dream child within all of us that probes and wonders about the world.
- It is imagination and adaptability.
- It is a fluency that develops multiple responses or answers to problem situations.
- It is originality that transforms common ideas or objects into new and alternative forms that bring excitement and learning.
- It is a force that stimulates all the senses to integrate into a creative energy field.

Persistence is the plain hard work and discipline necessary to create something.

- It is sticking to the task at hand over long periods of time.
- It is the work of creativity.
- It is precision and quality in work.
- It is an enthusiasm and a love of learning.
- It is a perseverance in the seeking of new ideas and challenges.

Flexible persistence is overcoming the problems and obstacles that are encountered in creating. It is the coupling of play and work that creates new ideas and thoughts. It is when a person persists with flexibility over a period of days, weeks and months on things which capture his/her interest.

INDIVIDUAL CHARACTERISTICS

1. *Delayed Closure—The Judgment Characteristic*

The judgment characteristic of creativity is delayed closure. It is the delaying in the closing of the mind and an intense interest in complex situations. At the time of delaying, the mind, body, and spirit wants to finish the problem or work. Delaying yet still working toward completion of the task creates a special tension. Delayed closure is the application of suspended judgment until the whole picture can be realized. The act of brainstorming is a good example of delayed closure. Individuals suspend judgment for periods of time until enough information has been collected to come to a solution or conclusion.

2. *Convergent Divergence—The Reasoning Characteristic*

The reasoning characteristic involves the use of clear, logical, linear thinking in combination with non-linear thinking to create solutions. The interplay between convergent and divergent thinking encourages rich creative thought. Divergent thought involves the fluency of thought or the ability to provide multiple responses. Divergence provides multiple answers to problem situations and convergence focuses on the best solution.

An example of the convergent-divergent characteristic is the ability to perceive different functions or alternate uses for a particular object.

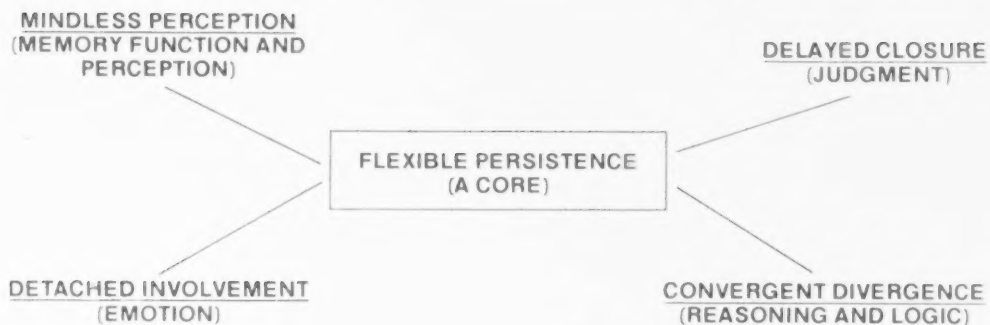
3. *Detached Involvement—The Emotional Characteristic*

Creativity at many times is charged with feeling and emotion. Detached involvement is an emotional characteristic that allows the individual to be emotionally involved in the search for solutions and at the same time to be detached from the involvement. This detachment allows reasoning and thinking in new ways. It is a resting time. Detached involvement is exemplified by a person leaving a problem to rest or play and returning with fresh and vivid ideas to find the solution.

4. *The Memory Function and Mindless Perception Characteristic*

Mindless perception is the ability to let things happen and to feel comfortable in situations that seem to have no answers, only questions. It is the relaxing of the mind that brings all of the senses of the body into play and provides a new, sharp perception of what is happening. Many times day-dreaming provides relaxation that brings clarity in awareness and promotes the, "AHA! I've got it!"

FIGURE 2
AN INTERACTION OF CHARACTERISTICS*



*SPECIAL CREDIT TO
McMullan, W. F. CREATIVE INDIVIDUALS: PARADOXICAL PERSONAGES.
The Journal of Creative Behavior, 1976.

ADDITIONAL THOUGHTS ON THE CHARACTERISTICS OF CREATIVITY*

*Additional Thoughts on The Characteristics of Creativity**

Creative personalities have a tendency to be:

- able to develop new ideas by taking old ideas and combining them in ways that are new and different.
- able to make sense out of situations that are ambiguous and confusing.
- able to find similarities in objects and situations that look very different and to find differences in objects and situations that look very similar. They are connection-makers:
- able to experience the world in fresh, vivid and flexible ways that produce ideas and solutions which are novel.
- able to take advantage of situations that are fortuitous and seemingly unrelated to the problem to be solved.
- able to deal with distractions and to avoid being at the mercy of the environment around them.

Creativity is a whole mind/body activity. The act of creation involves all of the person. It is the linking of linear, sequential, convergent thinking with non-linear, intuitive, divergent thinking. The completely creative person may have need of both a mode of thinking conducive to generating original ideas and a separate mode that is useful for generating feasible ideas. The core of flexible persistence holds the modes of thinking together with a tension that encourages an openminded willingness to pursue leads in any direction and the perseverance that supplies strong personal involvement and a strong support of a new way.

*SPECIAL CREDIT TO:
Hofstadter, Douglas. GODEL, BACH AND ESCHER, *Basic Books*, 1980.

SECTION II

Attitudinal Factors Conducive to Creativity

The range of attitudes toward creativity held by the various people who influence the learning and the growing process of students is of critical importance. The students' own attitudes, those of their families, friends and fellow students, as well as the attitudes of their teachers and those responsible for establishing and maintaining the educational climate in the schools, all help determine the degree to which students will explore their own creative potentials. Each group feels certain responsibilities for the students' education and carries certain attitudes regarding its perceived role; often this is conscious and frequently based on past experiences. Besides the inherent characteristics of creative activity which encourage or discourage students, these attitudinal factors must be acknowledged and given careful attention.

Once creative approaches are used and accepted in the learning environment, they become more acceptable in the student's peer group. It is at this point that the student's attitude becomes positive. Because people are basically social animals, they seek positive reinforcement for the processes they use. Once the freedom of encouragement is available, the creative process can begin without fear that failure will constitute personal disaster.

Creativity will be acceptable to the school community when it is used as a process evolving from an organized body of knowledge, and when it is seen as furthering that knowledge. To gain the support of the school community, creativity must be clearly fostered as a process toward a product as well as a way of feeling good about one's own capabilities. It is important that positive attitudes toward creativity be fostered in schools before creativity can be expected to flourish.

MOST CREATIVITY SPRINGS FROM AN ART OR A DISCIPLINE

In order to create, one must learn the skills involved in the process. The creator must be able to work with the disciplined body of knowledge and teachers who encourage this approach provide their students with the greatest creative freedom.

Without both a respect and a command of a body of knowledge, the poet cannot be expected to write a technically correct poem, the artist cannot be expected to maintain the proper perspective, and the mathematician cannot be expected to understand the correctness of a new analytical method. The teacher, however, must instill the attitude that it is necessary to go beyond the understanding of the knowledge, and go into its application in as many divergent ways as possible. To try to foster creativity without re-

spect for the discipline is to encourage creation that fails to communicate and therefore becomes a failure in the eyes of its creator. To foster a respect for knowledge without asking the student to use that knowledge is to render the knowledge purposeless.

EMPHASIS SHOULD BE PLACED ON PROCESS RATHER THAN ON PRODUCT

It seems much easier to evaluate a product than a process, but if creativity is to be taught, then the teacher must watch, guide and encourage the process. If the product is not entirely successful, but the process has been well thought out, and followed through with care, the process itself should be evaluated. In this way the process of creative behavior becomes less and less mysterious and more available.

CREATIVITY MUST HAVE A PLAN OR STRATEGY

It is not enough to simply encourage the idea of creativity. It is necessary to provide possible directions from which the creative process may emerge. The result may be that some students will move in the planned direction, but others will become creative in their methods of divergence from the plan. The creative atmosphere demands that some plan or structure be suggested, and that the creator must accept or create a new structure. Simply providing space and time is not enough to draw forth the innate creativity in all students. The creative student must have structure, the freedom to diverge from that structure into a new format or plan, and the encouragement of the teacher that this divergence, successful or not, is worth the time and energy of all involved.

NURTURING THE BASIC CREATIVITY IN ALL PEOPLE MUST REMAIN A FLEXIBLE PROCESS

The creative process emerges under the guidance of someone who nurtures it, but rarely as the nurturer would have assumed. As a sculptor working on an emerging form must constantly analyze what has been done, so must the nurturer guide the creative process. The product is frequently not what anyone expected. It is important that both teacher and student analyze what has been accomplished and remain flexible during the process.

EVEN IN A CREATIVE CLIMATE IN A SCHOOL, NOT EVERY CHILD OR TEACHER CAN BE EXPECTED TO BE CREATIVE 100% OF THE TIME

If we provide the climate in which the creative process is acceptable, we must be willing to allow for apparent inactivity. There are times of withdrawal and of thought, neither of which is easily acceptable to the person providing the climate. Encouragement at these times is wise, but demanding that the process continue immediately is futile and often damaging.

CREATIVITY CAN BE VERY THREATENING, SCARY, AND RISKY TO THE CREATOR

Teachers fostering creative students, or administrators fostering creative teaching, must recognize the personal feelings and emotions involved in the creative process. It is important to be gentle, firm and understanding if one is to help foster the process. Most people who are creating want honest, full responses to their work. It is damaging to the creativity of an individual for work to be either one-sidedly criticized or overloaded with praise. It is most important to deal with the creator honestly. Evaluation should be on the basis of knowledge of the discipline which the creator is using.

TEACHERS AND STUDENTS MUST REALIZE THAT REJECTION AND FAILURE ARE PART OF THE CREATIVE PROCESS

Although one can never be really comfortable with the rejection by those who don't understand the creative process, or those who "knew" the process was doomed to failure before it started, the creative person must be taught to expect those reactions and to not fear them or allow them to stop the creative process.

In a success-oriented society, it is important if a creative atmosphere is to be maintained that there be a place for failure. Students must learn to accept that failure is not a reason to give up, but rather is a part of the creative process, which one must expect. Some chosen paths may indeed be dead-ends; others may be good paths toward a different goal.

ENCOURAGEMENT IS A NECESSARY PART OF THE CREATIVE ENVIRONMENT

Given the fact that the student will face set-backs, peer group and parent criticism and, at times, the feeling of not meeting his/her own goals, it is important that the teacher remain a strong interactive critic and source of encouragement. It is also true that a teacher maintaining such an environment is subject to many of these same pressures and needs encouragement. The teacher who remains willing to be a facilitator of creative education will also need strong, solid, critical evaluation in relation to both successes and failures, as well as frequent encouragement from administrators.

CREATIVE ADMINISTRATORS FOSTER CREATIVE TEACHERS

A teacher working to be creative in an atmosphere which either discourages or simply ignores those efforts, may soon "burn out." If we expect students to be nurtured, we should also expect to nurture teachers. To expect all the teacher's rewards to come from student success is the same as assuming that the student's rewards can come from the process alone. Administrators who seek creative teachers will need to foster creative climates in which they can do their work. This has less to do with space and directions than it has to do with attitudes and encouragement. These teachers will then see themselves as creative and foster creativity in their students.

SECTION III

Environmental Factors Conducive to Creativity

Section III: Environmental Factors Conducive to Creativity

As we are developing an understanding of the major evolutionary stages of human perception and cognition, we are beginning to use that knowledge in the design of architectural spaces. Architects and educators address the question of creating environments in which students flourish. In a spirit of joint inquiry, experts from many fields have looked into the evolving fields of environmental psychology and architecture. We hold a common belief that physical environments exert powerful influences over the perceptual and social developments of learners.

ARCHITECTURE IS EVERYONE'S OPPORTUNITY

For centuries, education was envisioned primarily as people . . . teachers and learners. Very little attention was given to the physical environments inside and outside the school. However, advances in school architecture during the past three decades have had a significant and positive impact on academic achievement.

One of the great gaps in the educational process is that very little about architecture is said in the schools. Architecture is a subject interesting to children as well as adults. Architecture, in fact, is the responsibility of the entire learning community.

CREATIVITY NEEDS DIFFERENT SETTINGS

Once the subject of architecture and environmental quality of the learning space becomes a subject of continuous interest to educators and learners, creative new ways of using available space and time will emerge. Then the questions evolve.

What kind of special spaces do we need indoors? A desirable listing may include: a private space for a single child; a space for computer experimentation and games; a space to store large constructions and objects; a dark place to hold light shows and films. Should there be a mix of carpet, tile and wood on walls, ceilings and floors? A totally carpeted room can become an exciting dark cave, or a cozy warm social setting. The creative school will make use of outdoor space with selected gardens, play areas, and views. Could provision be made for outdoor spaces to be viewed from a small tower; a bay window with a window seat; or specially placed benches?

Flexibility is important. The key is attitudinal. The environment must not be thought of as inert and immutable, but changeable to meet student

needs. In this context the broom closet is easily transformed into a dark-room, and the cafeteria into a makeshift theatre.

A CREATIVE ADMINISTRATOR AND TEACHER ARRANGE SPACE AND ATMOSPHERE TO STIMULATE LEARNING

The administrator has a special responsibility to see that exciting teachers are hired and sustained in their positions; that creative community people are identified and brought into the educational process; that the school building's learning spaces be constantly updated and modified for appropriate use; and that the school's schedule be creatively flexible.

The teacher's role is central in that the teacher as architect can, and does, control the young person's physical and emotional climate. Teachers should think of their classrooms as stage sets where students are provided a variety of spaces: a space for a single child to be alone; a space for three friends to be together; an assembly space where everyone can come together; an outdoor exercise course; a tree hut; a woods to play in; a swamp to study, etc. It is important to note that none of the above multi-sensory environments need be costly. In this context the teacher is viewed as an architect who helps shape attitudes, setting, and results.

SECTION IV

Materials Needed to Foster Creativity

A silent space for thought, or a well timed word may affect the creative process. However, for the purposes of this document, materials are defined as tangible elements.

Materials can enhance, encourage, and excite creativity. The simplest and yet most complex material involved in the creative process is the mind. The mind can operate creatively in the absence of tangible materials, as in images we fantasize, but there is no doubt that the activity of the mind is effectively nurtured by materials which allow for and encourage creative behavior.

Materials that foster creativity give rise to the following behaviors:

- the students are totally immersed in activity, either alone or with their classmates;
- the students are rejecting solutions and trying anew;
- the students are bubbling over with energy to complete a task, in or outside of school;
- the students are making new connections, synthesizing their experiences;
- the students are brainstorming, organizing, listing, offering alternatives, suggesting a plan;
- the students are unaware of time or distractions around them;
- the students are filled with enthusiasm that spills over into other student areas, other students, and outside of school.

ATTRIBUTES OF CREATIVE MATERIALS

The most important characteristic of a material is flexibility. The material should allow for manipulation, experimentation, and discovery. The design of the materials should be open-ended and allow for a variety of uses. Materials may be as basic as pencil and paper, or as elaborate as a 16mm camera. A creative use of pencil and paper might be making pinwheels.

Different materials allow individuals to respond creatively, therefore the greatest possible breadth of materials should be available at all times. For example, one student may work most creatively with open-ended math materials, another with brush and paints, still another with a musical instrument, yet another with three dimensional spacial models. In each case the material should have intrinsic meaning to the student, capitalizing on the student's interest in a problem-solving way.

The range of creative materials is as vast as the universe. The list of materials and their sources is endless: home scraps, by-products of manufacturing, and gifts of nature. Many are quite ordinary, others are not. It is the

manipulation of these ordinary things which can transform the commonplace into the extraordinary. In addition, the occasional introduction of an exotic material (magenta on the paint tray or a calculator on the math table) may revitalize the creator's spirit. This kind of variety may reduce an individual's dependence on any single material.

SELECTION OF CREATIVE MATERIALS

The role of the educator is to select materials for the creative process. Diagnosis comes first. What are the emotional, social, and educational needs of the students? What is the content background? What skills and concepts are involved? The creative materials should be chosen in response to the diagnosis of these needs.

Planning, both long and short term, follows diagnosis. How will the materials be introduced, the students motivated? How will the use of materials be effectively managed? Should tidiness be required, or should disarray be permitted? Is there a special need for lighting, work space, storage, reporting and record keeping?

USE OF CREATIVE MATERIALS

The role of the educator is to guide the use of creative materials. In order for creativity to be a student's act, there is a clear implication that the educator be minimally involved. There is a time for remaining in the background and permitting struggle with the materials, and there is a time for stepping unobtrusively forward with support and assistance. However, the educator always retains responsibility for initiating, developing, monitoring, and evaluating the use of materials.

The role of the educator is to vary the time allotted for activities. Sustained activities are important since they afford the creator with the opportunity to explore. Shorter tasks build self-confidence for there can be delight in a quickly executed solution.

The role of the educator is to determine the degree of structure required for a given project. A student may be asked to work towards a solution to a specific problem, or may be left free to use materials in his/her own way. For example, a table filled with magnets, filings, nails, nuts, screws, bolts, and old appliance parts may invite a variety of creative responses, depending upon how they are presented.

ACQUISITION OF CREATIVE MATERIALS

The responsibility for providing creative materials is shared by the entire school community. From the Parent-Teacher Organization which raises funds to purchase a computer, to the custodians who help save milk cartons, to the classroom teacher who gathers pinecones and acorns, to the superintendent and principal who establish a positive community climate regarding finances, to the music teacher who locates rhythm instrument materials, to the school psychologist who selects thinking games, the entire body of people who are involved with the educational process should be considered providers of creative materials. The coordinator of this effort for each individual child is the classroom teacher.

SECTION V

Next Steps

OBJECTIVES

- A. To visit and assess local creativity projects that have been generated as a result of this document, and/or the training workshops offered at the "Second Working Conference on Creativity."
- B. To identify exemplary local creativity projects and distribute information concerning these projects statewide.
- C. To develop a resource packet on fostering creativity that includes both theoretical and practical information.
- D. To establish a network of people who are concerned with fostering creativity and who can effectively share their knowledge and experience with others.
- E. To explore and develop resource information concerning the creative use of technology, particularly as concerns the establishment of a state-wide computer network.
- F. To initiate a series of training sessions and/or an annual institute aimed at assisting teachers and administrators to foster creative learning environments.
- G. To initiate the regional replication of the process utilized by the Creative Competencies Task Force for exploring the role of creativity in Vermont's schools.

SECTION VI

Resources

Resource materials for this project were contributed by Task Force members and participants at the Second Working Conference on Creativity. It is a selective listing and it is meant to be basic and practical; but by no means exhaustive. Works are grouped alphabetically in three categories for ease in reader use: Philosophical/Theoretical; Practical; and Student Reading. Additional resource titles may be obtained from Ron Rubin at the Vermont Department of Education.

PHILOSOPHICAL/THEORETICAL

Arieti, Silvano. *CREATIVITY: THE MAGIC SYNTHESIS*, Basic Books, Inc., 1976.

Arieti talks about how we find creativity in all the disciplines and makes an argument for the concept that, given the knowledge we have today, we should be able to cause to happen more frequently the great periods in history such as the Renaissance. Valuing creativity is the key.

Hadamard, Jacques. *THE PSYCHOLOGY OF INVENTION IN THE MATHEMATICAL FIELD*, Dover Publications, Inc., 1945.

A book which describes the genesis of abstract mathematical ideas. The book throws light on the methods of mathematical "invention" and offers revealing insights into thought processes in general.

Hagen, Uta. *RESPECT FOR ACTING*, Collier Macmillan, 1973.

This fascinating and detailed book about acting is a credo, the accumulated wisdom of her years spent in intimate communion with her art. It is a voicing of what she teaches about a creative craft.

Kikuchi, Makoto. *CREATIVITY AND WAYS OF THINKING: THE JAPANESE STYLE*, *Physics Today*, September 1981, Vol. 34 No. 9, pages 42-51.

A perceptive assessment of creativity as it relates to problem-finding and problem-solving in engineering in an east vs. west context.

Lowenfeld, Vickor; Lambert Brittain. *CREATIVE AND MENTAL GROWTH*, Macmillan Company, 1965, 406 pages.

A classic in art education: stages of growth for children and a means for evaluating creativity.

May, Rollo. *THE COURAGE TO CREATE*, Bantam Books, 1975.

A "handbook" for permission to go beyond where we are now—whether a school system would ever go into distribution of this as an underlying text, I doubt—explains, simply, that the creative individual is not usually "popular."

McMullan, W. E. *CREATIVE INDIVIDUALS: PARADOXICAL PERSONAGES*, *The Journal of Creative Behavior*, 1976, 9 pages.

This article identifies and describes eight characteristics of individual creativity. It thereby provides for identifying creative students. An excellent, brief, and very readable paper!

Ornstein, Robert E. *THE PSYCHOLOGY OF CONSCIOUSNESS*, Viking Press, 1972, 200 pages.

An excellent resource on thinking and the activities of the right brain and the left brain. Ornstein did some of the original work on persons that had the split brain operation. He describes their reaction to tests that illustrate the activities of the right brain and left brain.

Rothenberg, Albert. *THE EMERGING GODDESS: THE CREATIVE PROCESS IN ART, SCIENCE, AND OTHER FIELDS*, The University of Chicago Press, 1979.

An empirically based study of the creative process which incorporates diverse perspectives of art, linguistics, philosophy, psychodynamics and experimental psychology. The book explains many puzzles and paradoxes regarding artistic and scientific creation and achievement.

Samples, Bob. *THE METAPHORIC MIND*, Addison-Wesley, 1976, 214 pages.

Bob Sample's book is a powerful, rational argument for reowning the mind of art, religion, dreams, and the like: *The Metaphoric Mind . . .*! He writes passionately about the rollicking, intuitive, creative part of ourselves that we have lost and can find again . . . it is a vivid celebration of human wholeness, a landmark in the growing literature of positive vision in a dangerous and fascinating age.

Shallcross, Doris. *TEACHING CREATIVE BEHAVIOR*, Prentice-Hall Inc., 1980, 176 pages.

A perceptive evaluation of creativity as it applies to elementary and secondary school teaching. This work summarizes experimental research in the area of creativity over the last decade.

Tammadge, Alan. "CREATIVITY," *The Mathematical Gazette* (A Journal of the Mathematical Association), October 1979, Vol. 63 No. 425, pages 145-163.

A perceptive presidential address to the Mathematical Association (U. K.) at its Annual Conference, April 1979. This paper calls for the training and retraining of teachers to identify, encourage and improve creative mathematical ability at all levels, but particularly at the top.

Torrance, E. Paul. *EDUCATION AND THE CREATIVE POTENTIAL*, The University of Minnesota Press, 1963, 167 pages.

Dr. Torrance discusses creative thinking in educational achievement, vocational success, mental health, and general social welfare. He writes about the problems of supervising creative teachers and supervisors. He summarizes much that is known about the conditions which nurture or inhibit creative growth. The importance of object manipulation in generating creative ideas, and the influence of peer groups on their creatively talented members is discussed.

PRACTICAL

Bentov, Itzhak. *STALKING THE WILD PENDULUM: ON THE MECHANICS OF CONSCIOUSNESS*, E. P. Dutton, 1977, 155 pages.

This book is a beautiful presentation of the elements of consciousness, creation and matter. Bentov's range and his beautifully simple diagrams should make this a delightful textbook for the new generation. His theory of consciousness' velocity as greater than light and spread

throughout the universe generates a consistent theory of omnipresence and omniscience which is intriguing. His style is clear, his substance is humorous; a fun-teaching book by a participant/meditator/neutral observer/creator.

Fox, Lynn H. THE PROBLEM OF WOMEN AND MATHEMATICS. Ford Foundation, August 1981, 40 pages.

This report summarizes the results of an investigation into the reasons for the limited participation of women in mathematics and related scientific fields.

Khatena, Joe. THE CREATIVELY GIFTED CHILD: SUGGESTIONS FOR PARENTS AND TEACHERS. Vantage Press, 1978.

Does what the title says. Khatena has developed a self-test for evaluating a child's strengths and weaknesses. He gives suggestions for encouraging the creative child.

Leff, Herbert. PLAYFUL PERCEPTION: CHOOSING HOW TO EXPERIENCE YOUR WORLD. University of Vermont (Department of Psychology). Forthcoming (in manuscript form), 200 pages.

A collection of awareness plans for increasing perceptual creativity and choice. Applications include fun, aesthetic appreciation, increased interest and curiosity, creative designing, and even "basic enlightenment."

Lipnack, Jessica and Jeffrey Stamps. NETWORKING: THE FIRST REPORT AND DIRECTORY, Doubleday, 1982, 398 pages.

Networking is a powerfully synergistic web of shared services, concerns, software, hardware, organizations, and individuals. Networking: The First Report and Directory is two important books in one: both an up-to-the-minute report on this fascinating and vital phenomenon, and the most comprehensive guide ever assembled to alternative possibilities today.

McKim, Robert. EXPERIENCES IN VISUAL THINKING, Brooks Collier, 1972, 250 pages.

McKim has put together over a hundred exercises and activities that develop "seeing" and visual thinking experiences ranging from mental imagery to drawing activities that engage the eye and the hand. Experiences in Visual Thinking is a prime source for a course in visual literacy.

Poze, Tony and W. J. J. Gordon. STRANGE AND FAMILIAR, Synergetics Education Systems, 1972, 128 pages.

This book is about the creative processes of learning and innovation and offers (in workbook style) a wide variety of activities which teachers can implement with their students. Since it relies heavily on the use of metaphor (i.e. making connections) the book is applicable across all subject areas and grade levels. It is an excellent book for stimulating creativity in children and a great resource for teachers.

Spolin, Viola. IMPROVISATION FOR THE THEATRE, Northwestern University Press, 1963.

It is an invaluable guide to theatre games usable in all levels and directions in educational settings.

Torrance, E. Paul. THE SEARCH FOR SATORI AND CREATIVITY, Creative Education Foundation, Inc. in association with Creative Synergetic Associates, Ltd., 1979, 220 pages.

A delightful fresh work dealing with aspects of human creative behavior:

emotion, fantasy, humor, fluency, and originality. This work tells you how to develop your own creative strengths and those of others.

Torrance, E. Paul; Nukhet, Drogan and Ruey Horng. CUMULATIVE ANNOTATED BIBLIOGRAPHY ON THE TORRANCE TESTS OF CREATIVE THINKING, Georgia Studies of Creative Behavior, 1981, 180 pages.

Dozens of doctoral studies and other professional research data are available in this remarkable annotated bibliography for finding the appropriate test of creativity for any age and in English and a variety of other languages.

Wachowiak, Frank. EMPHASIS: ART, International Textbook Company, 1968, 180 pages.

A practical approach to planning teaching and motivating students in a creative atmosphere.

STUDENT READING

Hurwitz, Al. CHILDREN AND THEIR ART, Harcourt Brace, 1970, 496 pages.

Good preparation for teaching art, ideas for lessons, coordination with classroom and growing professionally.

McGaw, Charles. ACTING IS BELIEVING, Holt, Rinehart & Winston, 1966.

This is a practical guide to beginning theatre training. It could be meaningful to a student who has no theatre background or one who has.

McPhail, David. THE MAGICAL DRAWINGS OF MOONY B. FINCH, Doubleday, 1978.

A children's story of a little boy whose magic pen creates gifts for others—they become greedy so he wields a "just-in-case eraser."

Salisbury, Barbara (editor). ARTSPLOSION: A NEWSPAPER FOR CHILDREN, Arts Coalition Northwest, 16 pages. 158 Thomas St., Suite 16, Seattle, WA 98109.

This is a newspaper written for and in some instances by children. It provides a variety of articles and activities that children can do with their peers, teachers, and/or parents which require the applicability of inventiveness, imagination, problem-solving, etc. It is important to note that the newspaper is directed toward children in grades 4-6. As well, although it is primarily distributed to five northwestern states, it can be obtained elsewhere. Artsploration is a marvelous newspaper for children.

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TASK FORCE

Alan Davis
Vermont Council on the Arts
Montpelier, VT 05602

John C. Howe
Rice Memorial High School
Burlington, VT 05401

Tordis Isselhardt
110 Harrison Avenue
Bennington, VT 05201

Gus Jaccaci
P. O. Box 136
Thetford Center, VT 05075

Donald Lockhart
Hinesburg Road
Charlotte, VT 05445

H. Donn McCafferty
Vermont Department of Education
Montpelier, VT 05602

Peter Marsh
Mill River Union High School
North Clarendon, VT 05759

Ron Rubin
Vermont Department of Education
Montpelier, VT 05602

Andrea Spring
Mary Hogan Elementary School
Middlebury, VT 05753

Frank Watson
College of Education & Social Services
University of Vermont
Burlington, VT 05405

RESPONSE SHEET

First Steps: Fostering Creativity in Vermont's Schools and Communities

Now that you've had the opportunity to review this document, we would greatly appreciate it if you could respond to the following questions. Please send your responses to Ron Rubin, Vermont Department of Education, Montpelier, Vermont 05602.

Thanks so very much for your assistance!

1. Was this document useful to you? In what way(s)? Please be as specific as possible.

2. What types of activities are you involved in which you feel effectively illustrate the concepts forwarded by this document? (This question is aimed at helping us identify exemplary educational practices, projects, programs, etc., which foster creativity.)

3. Which item(s) do you think is the most important concerning those that are suggested as Next Steps? (Please refer to page eleven.) Feel free to make additional recommendations.